

Intro+Problems_1011.pdf (application/pdf Object) - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://mrwing.wikispaces.com/file/view/Intro+Problems_1011.pdf

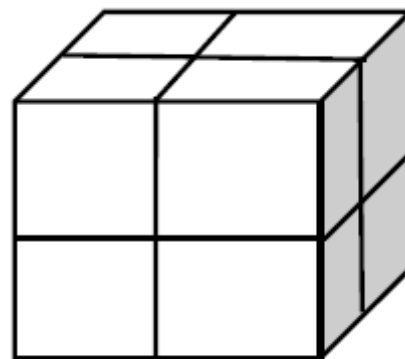
Most Visited Getting Started Latest Headlines Hotmail Pandora SCHS Email Wiki

Intro+Problems_1011.pdf (applic... Mathography.pdf (application/pdf ...

1 / 2 102% Collaborate Sign Find

Painted Cubes

A cube with edges of length 2 centimeters is built from centimeter cubes. If you paint the faces of this cube and then break it into centimeter cubes, how many cubes will be painted on three faces? How many will be painted on two faces? On one face? How many will be unpainted? What if the edge has a length different from 2? What if the length of the edge is 3 cm? 4 cm? 5 cm? 50 cm? n cm?



A 3D diagram of a cube constructed from smaller unit cubes. The cube is 2 units wide, 2 units high, and 2 units deep. The front face is a 2x2 grid of squares. The top face is also a 2x2 grid of squares. The right side face is a 2x2 grid of squares. The edges of the cube are highlighted with thicker lines.

Pattern Building

Done

Cube Length	2	3	4	N
3-faces	8	8	8	8
2-faces	0	12	24	$12(n-2)$
1-face	0	6	24	$6(n-2)^2$
0-face	0	1	8	$(n-2)^3$
Total # Cubes	8	27	64	N^3

